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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,410	08/31/2001	Pieter Lykle Buwalda	294-103PCT/U	2611

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09/26/2002

EXAMINER

LEWIS, PATRICK T

ART UNIT	PAPER NUMBER
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1623

DATE MAILED: 09/26/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/869,410

Applicant(s)

BUWALDA ET AL.

Examiner

Patrick T. Lewis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 July 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Response to Amendment***

1. In the amendment filed July 8, 2002, claims 1-12 were canceled. Claims 13-20 were added. The Specification was amended to insert section headings on pages 1-3.
2. In regards to Rejections under 35 U.S.C § 101 and 112, second paragraph, applicant's amendments filed July 8, 2002 canceling claims 1-12 have rendered the rejections set forth by the examiner in the Office Action dated April 9, 2002 moot.
3. In regards to Rejections under 35 U.S.C § 102, claims 1-3 have been canceled rendering their rejections moot; however, newly added claims are anticipated by the art of record and will be addressed below.

### ***Response to Remarks***

4. The preliminary amendment applicant asserts was filed on July 24, 2001, has not been received, and thus, has not been entered into the record. The amendment filed July 8, 2002 and the amendment filed September 23, 2001 intended to be a supplemental amendment to the July 24, 2001 preliminary amendment have been entered.

### ***Response to Arguments***

5. Applicant's arguments filed July 8, 2002 have been fully considered but they are not persuasive. Applicant asserts that Seppala et al. is deficient since natural root or

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tuber starches contain at most 80% of amylopectin. A reference is deemed to be valid for what it teaches. Seppala discloses hydrophobic starches which may be derived from root or tuber starches with an amylopectin content of 0 to 100% (page 15, lines 18-20). Thus, claims of starches derived from root or tuber starches with an amylopectin content of 0 to 100% are anticipated by the art of record.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 13-15 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Seppala et al. WO 97/03120 (Seppala).

Seppala discloses hydrophobic starches which may be derived from potato, wheat, maize, tapioca, rice and similar root or cereal plants (page 15, lines 18-26). The amylopectin content of the starch may be from 0 to 100% (page 15, lines 18-20). The starch is prepared by oxidation, hydrolysatation, cross-linking, cationization, etherfication, or esterfication. The starches are preferably obtained from the esterfication or etherfication of the natural starch with one or several C2-24-carboxylic acids (page 15, lines 28-31; page 16, lines 1-4). Esterfication is also accomplished using acetic anhydride in the presence of a catalyst (page 16, lines 15-22).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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11. Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seppala et al. WO 97/03120 (Seppala) in view of Bathelaan et al WO 94/24169 (Bathelaan).

Claims 13-18 are drawn to a process for preparing a hydrophobic starch comprising attaching a hydrophobic substituent to the starch by esterification, etherification, or amidation wherein the starch is a root or tuber starch, or derivative thereof, comprising at least 95% amylopectin based on the dry substance of the starch and wherein the reaction utilizes a hydrophobic reagent comprising an alkyl having 7-24 carbon atoms. Claim 19 is drawn to a hydrophobized amylopectin starch product of the process of claim 13. Claim 20 is drawn to a method for thickening a starch solution comprising adding the starch product of claim 19 to a starch solution.

Seppala discloses hydrophobic starches which may be derived from potato, wheat, maize, tapioca, rice and similar root or cereal plants (page 15, lines 18-26). The amylopectin content of the starch may be from 0 to 100% (page 15, lines 18-20). The starch is prepared by oxidation, hydrolysis, cross-linking, cationization, etherification, or esterification. The starches are preferably obtained from the esterification or etherification of the natural starch with one or several C2-24-carboxylic acids (page 15, lines 28-31; page 16, lines 1-4). Esterification is also accomplished using acetic anhydride in the presence of a catalyst (page 16, lines 15-22).

Seppala and the instantly claimed invention differ in that Seppala does not teach (1) a process wherein the starch is hydrophobized via amidation, (2) attaching the

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hydrophobic group in the presence of a surfactant, and (3) a method for thickening a starch solution. However, these deficiencies are taught by Bathelaan.

Bathelaan teaches a method of making amid-modified carboxyl-containing polysaccharides via amidation utilizing long chain primary alkyl amines (pages 12-14, Examples 1-3). Bathelaan also teaches the use of butyl glycol ether [surfactant] to aid in the hydrophobization (page 11, lines 4-7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the hydrophobicity of starch via amidation Bathelaan teaches such a process for polysaccharides. It would have been equally obvious to employ surfactants to promote the reaction since it is well known in the art that reactions involving hydrophobic and hydrophilic substrates are enhanced using phase transfer catalysts (surfactants). Bathelaan further teaches that the hydrophobic polysaccharides exhibit an improved viscosifying [thickening] effect (page 2, lines 15-20) and may be used as a compatibilizer for starch based polymers (page 11, lines 7-11). It would have been obvious to use the hydrophobic starches as thickening agents since Bathelaan teaches that hydrophobic polysaccharides improve viscosity.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Seppala and Bathelaan and arrive at the instantly claimed invention. One would have been motivated to do so to produce dispersing agents useful for the coatings industry.

***Conclusion***

12. Claims 13-20 are pending. Claims 13-20 are rejected. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



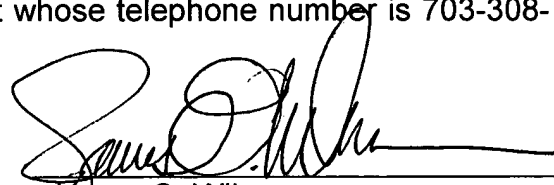
**Contacts**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick T. Lewis whose telephone number is 703-305-4043. The examiner can normally be reached on M-F 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on 703-308-4624. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 for regular communications and 703-305-3014 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

Patrick T. Lewis, PhD  
Examiner  
Art Unit 1623



James O. Wilson  
Supervisory Patent Examiner  
Technology Center 1600

ptl  
September 23, 2002